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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/618,675	07/15/2003	Shinichi Mihara	12219/38	5902
<div>7590      07/06/2007</div> <div>Kenyon &amp; Kenyon Suite 700 1500 K. Street, N.W. Washington, DC 20005-1257</div>				
			EXAMINER YODER III, CHRISS S	
			ART UNIT 2622	PAPER NUMBER
			MAIL DATE 07/06/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/618,675

Applicant(s)

MIHARA, SHINICHI

Examiner

Chriss S. Yoder, III

Art Unit

2622

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 15 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07/15/2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashi et al. (US Patent # 6,741,760).
2. In regard to claim 1, note Hayashi discloses an electronic imaging system comprising a zoom lens system (column 8, lines 11-15) and an electronic image pickup device located on an image side thereof so that an image of a subject can be formed on a photoreceptive surface of the electronic image pickup device for conversion into electric signals (column 8, lines 11-15), wherein a stop has a constantly fixed aperture shape (column 8, lines 20-25, the aperture stop is considered a fixed shape), and the zoom lens system meets the condition of having  $F > a$ , where  $a$  is a horizontal pixel pitch in  $\mu\text{m}$  of the electronic image pickup device and  $F$  is an F-number of the zoom lens system at a wide-angle end thereof (column 1, lines 41-50, column 5, lines 31-67, and column 8, lines 27-35).

Therefore, it can be seen that the Hayashi device lacks the use of pixels that are less than or equal to  $4 \mu\text{m}$ . However, since the Hayashi reference does teach the use of  $5 \mu\text{m}$  pixels as well as maintaining the relationship between the size of the pixel and the F-number, the use of  $4 \mu\text{m}$  pixels instead of  $5 \mu\text{m}$  pixels is considered a matter of

design choice. Therefore, it would have been obvious to modify the Hayashi device to use 4  $\mu\text{m}$  pixels instead of 5  $\mu\text{m}$  in order to decrease the size of the imaging device.

3. In regard to claim 2, note Hayashi discloses a medium on an optical path between the zoom lens system and the electronic image pickup device consists solely of air or a non-crystalline medium showing anisotropy (column 1, line 14 – column 2, line 25 and figure 11; the typical use of a crystalline filter is replaced with a lens system).

4. In regard to claim 3, note Hayashi discloses a medium on an optical path between the zoom lens system and the electronic image pickup device consists solely of any one of air, a glass material and a plastic material (column 1, line 14 – column 2, line 25 and figure 11; the typical use of a crystalline filter is replaced with a lens system).

5. In regard to claim 4, note Hayashi discloses an electronic imaging system comprising a zoom lens system (column 8, lines 11-15) and an electronic image pickup device located on an image side thereof so that an image of a subject can be formed on a photoreceptive surface of the electronic image pickup device for conversion into electric signals (column 8, lines 11-15), wherein a stop has a constantly fixed aperture shape (column 8, lines 20-25, the aperture stop is considered a fixed shape), that the zoom lens system meets the condition of having  $F > a$ , where  $a$  is a horizontal pixel pitch in  $\mu\text{m}$  of the electronic image pickup device and  $F$  is an F-number of the zoom lens system at a wide-angle end thereof (column 1, lines 41-50, column 5, lines 31-67, and column 8, lines 27-35), and a mode of reading signals from the electronic image pickup

device has a sequential reading function (column 4, lines 13-15, column 6, line 18 – column 7, line 32 and figure 8: steps 1-18).

Therefore, it can be seen that the Hayashi device lacks the use of pixels that are less than or equal to 4  $\mu\text{m}$ . However, since the Hayashi reference does teach the use of 5  $\mu\text{m}$  pixels as well as maintaining the relationship between the size of the pixel and the F-number, the use of 4  $\mu\text{m}$  pixels instead of 5  $\mu\text{m}$  pixels is considered a matter of design choice. Therefore, it would have been obvious to modify the Hayashi device to use 4  $\mu\text{m}$  pixels instead of 5  $\mu\text{m}$  in order to decrease the size of the imaging device.

6. In regard to claim 5, note the primary reference of Hayashi discloses an electronic imaging system comprising a zoom lens system, as recited in claim 4 above. Therefore, it can be seen that the Hayashi device lacks the use of an interlaced scanning reading mode wherein an odd-number field or an even-number field is used to perform the sequential reading. Official Notice is taken that the concepts and advantages of using an interlaced scanning reading mode wherein an odd-number field or an even-number field is used to perform the sequential reading are notoriously well known and expected in the art. Therefore, it would have been obvious to one of ordinary skill in the art to modify the Hayashi device to include the use of an interlaced scanning reading mode wherein an odd-number field or an even-number field is used to perform the sequential reading in order to reduce the amount of data output each from the image sensor each frame so that the can be captured at higher speeds.

7. In regard to claim 6, note the primary reference of Hayashi discloses an electronic imaging system comprising a zoom lens system, as recited in claim 4 above.

Therefore, it can be seen that the Hayashi device lacks the use of an interlaced scanning reading mode wherein an odd-number field and an even-number field are simultaneously exposed to light to mix signals from adjacent fields, thereby performing the sequential reading. Official Notice is taken that the concepts and advantages of using an interlaced scanning reading mode wherein an odd-number field and an even-number field are simultaneously exposed to light to mix signals from adjacent fields, thereby performing the sequential reading are notoriously well known and expected in the art. Therefore, it would have been obvious to one of ordinary skill in the art to modify the Hayashi device to include the use of an interlaced scanning reading mode wherein an odd-number field and an even-number field are simultaneously exposed to light to mix signals from adjacent fields, thereby performing the sequential reading in order to increase the dynamic range of the image sensor.

8. In regard to claim 7, note Hayashi discloses that the electronic imaging system is a CCD that uses a progressive mode as a reading mode (column 4, lines 11-15).

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US006417973B2: note the use of a zoom system having  $F > a/0.4$ .

US20020027721A1: note the use of a zoom system having  $F > a/0.4$ .

US007136230B2: note the use of a zoom system that increases the circle of confusion.

US006088059A: note the use of a zoom system constructed of glass to adjust aberrations.

US007151570B2: note the use of an optical system used to adjust the circle of confusion based on pixel pitch.

US006905462B1: note the use of an optical system having air between elements to prevent fogging.

US006178046B1: note the use of multiple fixed apertures to reduce aliasing.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chriss S. Yoder, III whose telephone number is (571) 272-7323. The examiner can normally be reached on M-F: 8 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivek Srivastava can be reached on (571) 272-7304. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CSY  
June 24, 2007



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